

What is claimed is:

1. A method for analyzing an arthropod sample for the presence of one or more analytes associated with the pathogen that causes human malaria, comprising:

a) contacting a liquid permeable support with the arthropod sample and one or more detectable analyte-specific reagents that bind specifically to a protein analyte associated with a *Plasmodium* sporozoite, if present, to form analyte-reagent complexes, said support comprising at least one detection area, said area having an analyte-specific capture reagent immobilized therein, said capture reagent specific for the protein analyte associated with the *Plasmodium* sporozoite, said capture reagent being adapted for capturing the analyte-reagent complexes; and

b) detecting the presence of the detectable analyte-specific reagent in the detection area, indicating the presence of the analyte in the sample.

2. The method of claim 1, wherein the detectable analyte-specific reagent further comprises a detectable moiety selected from the group consisting of a colored moiety, a magnetic moiety, a radioactive moiety and an enzyme.

3. The method of claim 1, wherein the detectable analyte-specific reagent is deposited on the support prior to contacting the sample.

4. The method of claim 1, wherein at least three detectable analyte-specific reagents for at least three different arthropod-carried agents associated with human

malaria are employed and the support comprises at least three capture reagents immobilized onto at least three different detection areas.

5. The method of claim 1, wherein the arthropod is a mosquito.

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6. The method of claim 5, wherein the sample is homogenized with a grinding solution prior to contact with said support.

7. The method of claim 1, wherein the support further comprises a control area having immobilized therein at least one reagent suitable for capturing the detectable analyte-specific reagent.

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8. The method of claim 1, further employing at least two detectable analyte-specific reagents, said reagents specific for a protein associated with *Plasmodium falciparum* circumsporozoite and a second specific for a protein associated with a *Plasmodium vivax* sporozoite and at least two different detection areas, one area having immobilized therein a capture reagent specific for the protein associated with *Plasmodium falciparum* sporozoite, and a second area having immobilized therein a capture reagent specific for the protein associated with the *Plasmodium vivax* sporozoite.

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9. The method of claim 8, wherein the *Plasmodium vivax* sporozoite is *Plasmodium vivax* 210.

10. The method of claim 8, wherein the *Plasmodium vivax* sporozoite is *Plasmodium vivax* 247.

5 11. The method of claim 1, wherein the analyte-specific reagents are monoclonal antibodies.

12. The method of claim 1, wherein the detectable analyte-specific reagents are gold-antibody conjugates.

10 13. The method of claim 1, wherein the detectable analyte-specific reagents are colored latex-antibody conjugates.

15 14. A method for analyzing an arthropod sample for the presence of at least one analyte associated with at least one type of arthropod-carried agent, wherein the arthropod-carried agent is a togavirus, comprising:

20 a) contacting a liquid permeable support with the arthropod sample and a detectable analyte-specific reagent that binds to an analyte associated with the togavirus, if present, to form an analyte-reagent complex, said support comprising a detection area, said area having an analyte-specific capture reagent immobilized therein, said capture reagent specific for the analyte associated with the togavirus, said capture reagent being adapted for capturing the analyte-reagent complex; and

b) detecting the presence of the detectable analyte-specific reagent in the detection area, indicating the presence of the analyte in the sample .

15. The method of claim 14, wherein the togavirus is an encephalitis virus.

16. The method of claim 14, wherein the togavirus is a flavivirus.

17. The method of claim 16, wherein the flavivirus is Dengue.

18. The method of claim 16, wherein the flavivirus is an encephalitis virus.

19. The method of claim 14, wherein the detectable analyte-specific reagent further comprises a detectable moiety selected from the group consisting of a colored moiety, a magnetic moiety, a radioactive moiety and an enzyme.

20. The method of claim 14, wherein the detectable analyte-specific reagent is deposited on the support prior to contacting the sample.

21. The method of claim 14, wherein three detectable analyte-specific reagents are used to detect three different encephalitis causing viruses and the support comprises three capture reagents immobilized onto three different detection areas.

22. The method of claim 14, wherein the arthropod is a mosquito.

23. The method of claim 14, wherein the sample is homogenized with a grinding solution prior to contact with said support.

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24. The method of claim 14, wherein the support further comprises a control area having immobilized therein at least one reagent suitable for capturing the detectable analyte-specific reagent.

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25. The method of claim 21, wherein said three viruses are Saint Louis Encephalitis virus, Western Equine encephalitis virus and Eastern Equine encephalitis virus.

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26. The method of claim 14, wherein the analyte specific reagents are monoclonal antibodies.

27. The method of claim 14, wherein the detectable analyte-specific reagents are gold-antibody conjugates.

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28. The method of claim 14, wherein the detectable analyte-specific reagents are colored latex-antibody conjugates.

29. A method for analyzing an arthropod sample for the presence of an analyte associated with a Ross River virus arthropod-carried agent, comprising:

5 a) contacting a liquid permeable support with the arthropod sample and a detectable analyte-specific reagent that binds to an analyte associated with Ross River virus, if present, to form analyte-reagent complex, said support comprising a detection area, said area having an analyte-specific capture reagent immobilized therein, said capture reagent specific for the analyte associated with Ross River virus, said capture reagent being adapted for capturing the analyte-reagent complex; and

10 b) detecting the presence of the detectable analyte-specific reagent in the detection area, indicating the presence of the analyte in the sample.

30. A method for analyzing an arthropod sample for the presence of two or more analytes associated with an arthropod-carried agent, comprising:

15 a) contacting a liquid permeable support with the arthropod sample and at least two detectable analyte-specific reagents that bind to each of the analytes, if present, to form analyte-reagent complexes, said support comprising at least two detection areas, said areas each having an analyte-specific capture reagent immobilized therein, said capture reagent being adapted for capturing one of the analyte-reagent complexes; and

20 b) detecting the presence of the detectable analyte-specific reagent in each of the detection areas, indicating the presence of the analyte in the sample.

31. A kit for analyzing an arthropod sample for the presence or absence of at least one analyte associated with an arthropod-borne agent, comprising a liquid

permeable support for contacting with said arthropod sample and at least one detectable analyte-specific reagent that forms an analyte-reagent complex with said analyte, said support comprising at least two detection areas having a capture reagent immobilized therein, said capture reagent being adapted for capturing the analyte-reagent complex.

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32. The kit of claim 31, further comprising at least two detectable analyte-specific reagents for at least two different arthropod-associated agents, and wherein the support further comprises at least two capture reagents immobilized onto at least two different detection areas.

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33. The kit of claim 31, further comprising at least three detectable analyte-specific reagents for at least three different arthropod-associated agents, and wherein the support further comprises at least three capture reagents immobilized onto at least three different detection areas.

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34. The kit of claim 31, wherein the kit is adapted for analyzing a sample suspected of containing mosquitoes.

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35. The kit of claim 31, further comprising a grinding solution for homogenizing said sample.

36. The kit of claim 31, wherein the support further comprises a control area having immobilized therein at least one analyte for capturing uncomplexed detectable analyte-specific reagent.

5 37. The kit of claim 31, further comprising at least two detectable analyte-specific reagents, said reagents specific for a protein associated with *Plasmodium falciparum* sporozoite and a second specific for a protein associated with a *Plasmodium vivax* sporozoite and at least two different detection areas, one area having immobilized therein a capture reagent specific for the protein associated with *Plasmodium*
10 *falciparum* sporozoite, and a second area having immobilized therein a capture reagent specific for the protein associated with the *Plasmodium vivax* sporozoite.

38. The kit of claim 31, wherein the analyte-specific reagents are monoclonal antibodies.

15 39. The kit of claim 31, wherein the detectable analyte-specific reagents are gold-antibody conjugates.

20 40. The kit of claim 31, wherein the detectable analyte-specific reagents are colored latex-antibody conjugates.

41. The kit of claim 31, wherein the support further comprises at least one detectable analyte-specific reagent for an analyte associated with a togavirus and at least

one detection area having immobilized therein a capture reagent specific for an analyte associated with the togavirus.

42. The kit of claim 31, further comprising a hollow plastic cassette for holding
5 the liquid permeable support.

43. The kit of claim 42, wherein the plastic cassette is formed with an opening for receiving a filter assembly adapted to clip onto the cassette above the liquid permeable support, the kit further comprising the filter assembly with a filter membrane disposed therein for filtering the sample prior to contacting the support.

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